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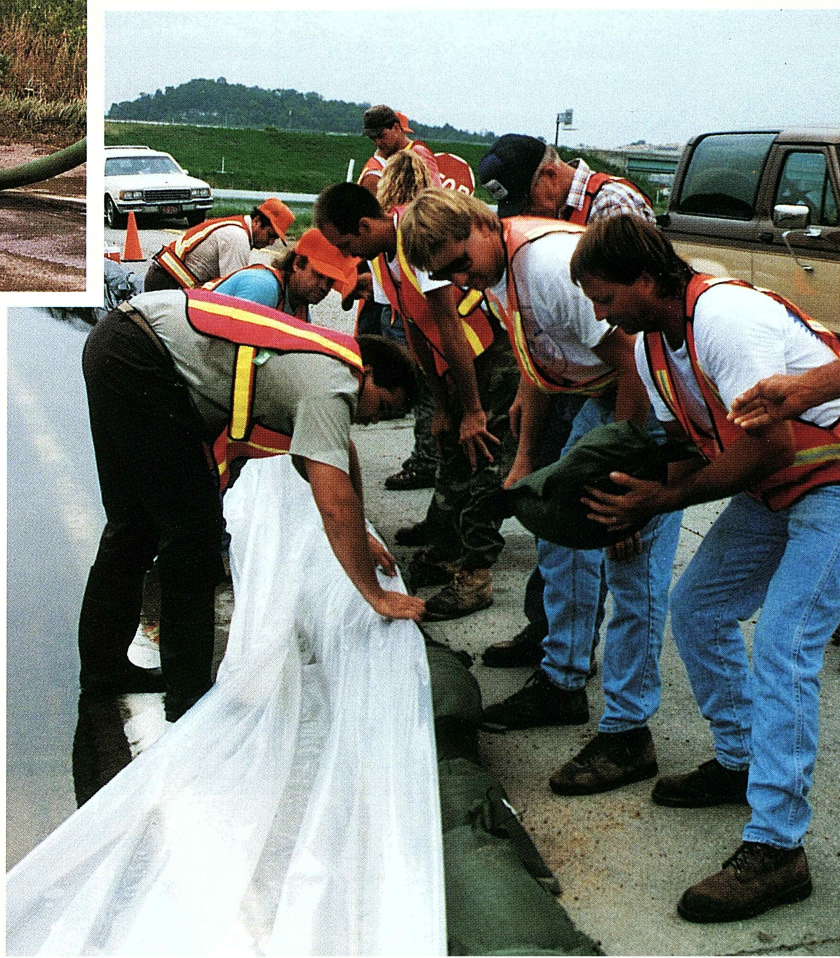
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*A tribute to the men and women
of the Missouri Highway and
Transportation Department who
battled the Flood of 1993*



Dedication

This booklet is dedicated to Maintenance Crew Leader Jon Wade Smith of St. Louis, who was killed Aug. 1, 1993, after he had finished repairing a flashing message board alerting motorists of detours caused by rising floodwaters. His dedication and devotion above and beyond the call of duty reflect the exemplary efforts put forth by the men and women of the Missouri Highway and Transportation Department as they battled the record Flood of 1993.





This publication, produced in an effort to capture the events and sights of the flood, is for distribution to Missouri Highway and Transportation Department employees. *Water Over Road* was put together as a thank you to all MHTD employees for their efforts and to help recall the sights, sounds and emotions of the summer of 1993.

Published by the Missouri Highway and Transportation Commission

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ON THE COVER:

Route 54 north of the Missouri River near Jefferson City is swamped by floodwaters in late July. Barricades could no longer hold back the onrushing currents.

BACK COVER:

Not many Mississippi River bridges stayed open during the Flood of 1993. The Memorial Bridge at West Quincy was no exception.



The year 1993 will be remembered as the year the rains came. From the time it started in early March until well into fall, the record rainfall caused an unprecedented number of Missouri highway and bridge closings and disrupted the state's rail, aviation and river transportation systems.

The Mississippi River went above flood stage April 1 in Hannibal, as numerous county and city streets began to close. "I expect it to be awhile before these will open," said one local official. And awhile it was.

Heavy spring rains delayed highway construction throughout the state. "With rain every few days, the ground is so wet our contractors can't get started," said District 1 Engineer Garry Chegwidien.

For many months, the Flood of 1993 became top priority for many of you. You have the heartfelt thanks of your co-workers and of the citizens of Missouri who depend on the transportation link you provide them.

The following pages will take you day by day through the worst of the flooding and its effect on Missouri's transportation network. It is also testimony to the hard work of the men and women who worked together as members of the Highway and Transportation Department's Flood Team '93.

July

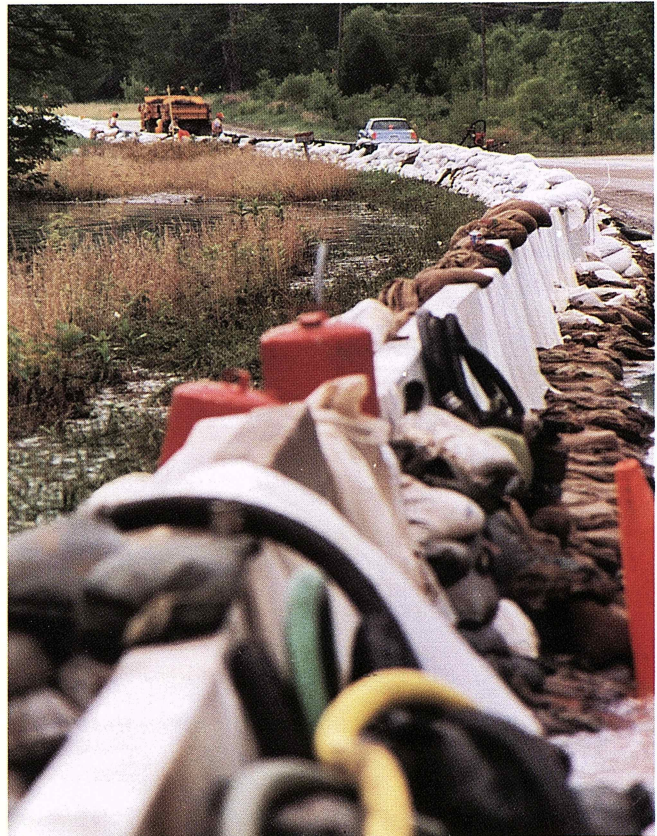
July 1: Gov. Mel Carnahan declares a state of emergency for flooded counties along the Mississippi and Missouri rivers.

July 1: The Route 54 Mississippi River crossing at Louisiana closes due to high water.

July 2: The Mark Twain Memorial Bridge carrying Route 36 across the Mississippi River at Hannibal closes because of rising floodwaters.

July 6: The Quincy Bayview Bridge is the only Mississippi River crossing open between Iowa and St. Louis. Pumps are keeping water from covering parts of the Route 24 bridge access in West Quincy.

July 6: The rising Missouri River causes the Rulo Bridge in Holt County to close. The bridge carries Route 159 traffic across the river into Nebraska.



MHTD employees put up hundreds of barricades across Missouri during the flood in an effort to keep highways open.

Despite the department's efforts, hundreds of roads across the state were under water and had to be closed. At the flood's high point, about 250 roads, like this one in Lewis County, were under water.





Department employees working in the floodwaters received free immunizations to guard against germs in the water that can cause tetanus, diphtheria and other illnesses.

Damage to the state's transportation system isn't yet visible in mid-July because of high waters, but many farms across Missouri were already swamped by floodwaters cut loose by broken levees.



July 7: St. Joseph city crews fill gaps in the Missouri River levee as water continues to rise. Route 6 is threatening to close. More than 40 roads are under water in northwest Missouri.

July 8: Brunswick area rains measure almost 11 inches above normal through the July 4 weekend. The department is flagging traffic in Brunswick as motorists are detoured through the area.

July 8: Missouri River flooding causes the closing of Route 240 at the Glasgow river bottoms. Many other area highways, including Route 24 in Dewitt and Brunswick, Route 5 near Glasgow, Route 65 near Chillicothe and Waverly, and Route 127 near Sweet Springs, are also closed.

July 8: Amtrak service between St. Louis and Kansas City stops for the second day in a row. Flooding from the Missouri River and its tributaries causes delays on freight routes between St. Louis and Kansas City.

July 8: Route 36 west of Chillicothe closes, forcing local motorists headed to Kansas City to detour along I-70 to the south or detour on smaller roads through Trenton to the north.

July 8: In Alexandria, more than 11,000 acres of farmland and nearly five miles of Route 61 are under eight to 10 feet of water this morning following at least two levee breaks overnight. La Grange and Canton are also threatened.

July 8: So far, 903 National Guard troops have been called up for flood duty. That's the fourth largest call up

WATER OVER ROAD

In District 2, this stretch of Route 24 west of Brunswick suffered serious damage as raging floodwaters swallowed the roadway.



The water running across Route 19 in Montgomery County was too swift to cross, as the driver of this truck discovered.



in 60 years. Flooding has claimed the lives of 10 Missourians.

July 12: Much of the nation's trans-continental train traffic is diverted through St. Louis as rising floodwater submerges rail lines for hundreds of miles. At the same time, the flood is idling thousands of barges, costing barge operators an estimated \$2 million a day.

July 14: Part of the Route 159 bridge that crosses the Missouri River north of St. Joseph is washing away and threatening to take the highway with it. After local citizens have a chance to evacuate the area, the department will stop dumping rock and give up on the road until the flooding subsides.

July 14: Heavy rains close Route 9 between Riverside and North Kansas City. Some areas receive 3 1/2 inches of rain in an hour.

July 14: Floodwaters from the Mississippi River close Route 177 north of Cape Girardeau. The water is 2 to 3 feet over the road and still rising.

July 14: At this point, damage to state highways isn't yet visible due to high water. Department staff around the state are offering a number of services, including providing aggregate for roads, supplying sand and bags for bagging and levees, delivering surplus median barriers for levee reinforcement, furnishing barricades for county roads and loaning equipment for moving sandbags.

July 14: In Glasgow, a railroad embankment acting as a levee breaks, washing out about 1,000 feet of track

When the man says...

**"WATER OVER THE ROAD,"
...he means it**

Some people just won't take good advice.

District 1 Maintenance Worker Gene Simpson was telling motorists the road ahead was closed due to two to three feet of water over it. But one driver insisted he was going through anyway, and his passengers agreed. Simpson couldn't change the driver's mind, so the car drove on down the road.

Simpson then went back to work warning other motorists of the hazard ahead. About 45 minutes later, he looked up and saw

that same vehicle returning from the closed section. It was coming toward him with all four doors open, and the driver was swerving the car from side to side in an attempt to "slosh" the water out of the floor.

The passengers weren't happy about this turn of events. As they drove past Simpson again on their way out of the area, he heard them telling the driver, "When the man says there is 2 to 3 feet of water on the road, he means it!" ♦

WATER OVER ROAD

and sections of a nearby highway. Downstream in New Franklin, more than 150 people are evacuated as a result of the levee break.

July 14: A Federal Emergency Management Center is established at Earth City in St. Louis County.

July 15: Record high flood levels close Route 63 north of Jefferson City for the first time in two decades. Department crews sandbag Route 54 north of town to keep the only other highway north of Jefferson City open.

July 15: About 1,000 feet of Route 24 in Carroll County wash out. Department staff are evacuating residents from flooded areas, adding extra signs, building an earth dam, cleaning up, waiving moving restrictions on truck permits to speed movement and help-

ing Scott County build a temporary road for access to commerce. OATS and similar operators are cleared to use vehicles for flood relief.

July 15: Nebraska Department of Roads crews drive across the Missouri River bridge at Rulo to dump rock on the Missouri side to keep the approach from washing away. MHTD had the rock but couldn't get to the bridge. Nebraska could get to the bridge but didn't have the rock — at first. They eventually found enough in stockpiles.

July 15: More than 500 square miles of land are flooded, forcing the evacuation of 15,000 Missourians. A total of 49 counties and the city of St. Louis have now been declared federal disaster areas.



The Meramec River flooded Telegraph Road in the counties of St. Louis and Jefferson.

This massive sandbag wall was built on Route 74 at Dutchtown to save the town from the flood.





The Mississippi River bridges at Quincy sat empty for most of the summer. The Memorial Bridge (right) closed July 1, forcing two-way traffic on the Bayview Bridge, but rising water closed the Bayview Bridge July 16. Both reopened Sept. 25.



July 15: The Missouri River at Glasgow is attempting to cut to a new channel that would bypass the Route 240 Bridge.

July 15: Rail traffic between Kansas City and St. Louis for four railroads is suspended because the Union Pacific line near the Missouri River is under 5 inches of water near Hermann. The only rail link still open between Kansas City and St. Louis is the Burlington line through Springfield.

July 16: The approach to the Route 118 bridge near Big Lake in northwest Missouri was lost and repaired overnight.

Route BB west of Kirksville (above) and the Route 51 Chester Bridge (below) were among the hundreds of Missouri roads and bridges closed to traffic during the flood. The Chester Bridge was closed due to high water for the first time in its history.



July 16: After a long battle by the community to keep water out, sand-bag barriers give way and the Mississippi River covers more than 14,000 acres in northeast Missouri, including the entrance to the Bayview Bridge in West Quincy. The mayor of Quincy estimates it could be 11 weeks or more before the bridge is accessible.

July 16: The Missouri River breaks through a levee and converges with the Mississippi River north of St. Louis, 20 miles above where the rivers normally meet.

July 16: More than 1,400 National Guard troops have been called to duty, and 16 Red Cross and five Salvation Army shelters are now open for flood victims.

July 16: Routes 25 and 74 at Dutchtown close as department work-



The Missouri Highway and Transportation Department coordinated recovery efforts during the flood with service organizations like The National Guard, The Salvation Army and The American Red Cross. Department crews cooperated with law enforcement, public safety and numerous other agencies at every level including local, city and volunteer groups.

Flood friends

You never know who you'll get as a visitor when you're a nighttime flagger during the flood of the century. For a few days that summer, District 2 maintenance crew members, flagging Route 65 traffic near Marshall Junction, were visited by a fox.

Every night this fox would come up looking for a midnight snack. The workers gave it pieces of sandwiches, cookies or whatever leftovers they had. The fox always came up close and waited calmly for a handout.

As soon as it got something, the fox would take off, carrying the food in its mouth. The crew



figured the fox was staying nearby, had babies to feed and because of the flooding, couldn't get any on its own.

When the floodwaters receded, crews were able to begin

repairing Route 65. Flaggers weren't necessary at night anymore. However, more rains came, as usual in 1993, and crews again had to flag traffic on Route 65. But the fox never reappeared. ♦



From sandbagging to answering telephones to cleaning up, every department employee had a part in the tremendous effort during the summer of 1993. Their spirit and determination made the seemingly impossible task of fighting the flood possible.

Flood relief: a team effort

As we reacted to the daily problems the flood presented, we were too busy to worry about using the department's quality improvement process. Or were we?

"Quality improvement boils down to working together to figure out the best possible ways to get things done," says Quality Improvement Coordinator Karen Keeney, who directs the department's quality improvement effort. "And that's what we did to handle the flood.

"We may not realize it, but our flood-fighting efforts represent quality improvement at its best."

Chief Engineer Wayne Muri agrees. "When we had to make decisions out there on the roadway, there was no time to talk to department heads and write letters," he says. "The people doing the work simply made the decisions, then got the job done.

"We talk a lot about empowering employees," Muri continues, "which means trusting workers to decide the best way to do their jobs. Well, that's exactly what

happened during the flood. And if this empowerment continues like it should throughout the department, we'll be doing our jobs like this all the time one of these days."

"I was really proud when people came up to me and said 'thank you' because they knew I worked for for the department," Keeney says. "This appreciation our customers showed proved to me that our values, teamwork and pride were apparent to them."

"We may not realize it, but our flood-fighting efforts represent quality improvement at its best."

— Quality Improvement Coordinator Karen Keeney

Central District Engineer Jim Toft is a believer in quality improvement, too. "Without that (quality improvement) training we all would have tried just as hard," he says, "but the knowledge we gained through quality improvement gave

us the wisdom to get things done faster, safer and using the team approach."

When talking about flood relief efforts, many of us think only of the people who sandbagged and directed traffic. But there were many more department workers who helped during the crisis. "If you think about it," Muri says, "almost every one of us helped out in one way or another.

"Many of our people handled lots of phone calls and made sure the public got the information it needed. A lot of folks talked with news reporters to make sure they got the word out," he says. "We had radio dispatchers keeping everyone coordinated. We had some people handling the financial assistance to make sure funding was squared away ... the list goes on and on.

"And don't forget everyone who pitched in to take up the slack when other people were called on for extra duties," Muri continues. "Without all those people working as a team, we couldn't have accomplished what we did." ♦

WATER OVER ROAD

ers help the community build massive sandbag walls to protect the town from rising floodwaters.

July 17: Chief Engineer Wayne Muri meets with President Bill Clinton and other federal, state and regional officials in Arnold for a flood summit. The Missouri representatives urge the president to raise the amount of disaster relief. The Federal Emergency Management Agency's estimate of total losses for the Midwest is \$2.4 billion while Missouri estimates its losses alone at \$2.7 billion.

July 18: Most of the 200 miles of the Katy Trail is under water. Tourism is down as travelers assume Missouri is covered with water

July 18: For the first time in its history, the bridge spanning the Mississippi River at Chester closes due to high water. The closing of the bridge, which carries Route 51 traffic, became necessary when the river stage passed the 45-foot mark.

July 18: Route 63 north of Jefferson City reopens after flood water covered it for three days. It is the first major road closed by the flood to be reopened.

July 20: Rivers are falling in northeast Missouri. The Mississippi River is cresting in the southeast. Roads and bridges are closed in about 200 locations.

July 22: In St. Charles County, emergency crews discover the Missouri River has washed away a 100-foot section of Route 94 near Defiance.

July 22: Repair work begins on the Route 159 Rulo Bridge in Holt County. The bridge first closed July 6.

July 22: Several state highways in Holt County are covered with water, including routes 59, E, N and C. Department maintenance crews have worked 24-hour days to keep the roads in operation.

July 23: High water forces the closing of I-29 from St. Joseph to the Iowa line. The Highway Patrol begins di-

verting traffic to Route 71, creating a tremendous traffic jam. "If you don't have to travel, we are asking people not to travel in northwest Missouri," a Patrol spokesman says.

July 24: Up to 5 inches of rain in northwest Missouri bursts levees, floods towns, swallows highways, closes bridges and forces the evacuation of a National Guard base. The Highway Patrol reports water is climbing an inch a minute over Route 136 near Rock Port.

The northbound lanes of Route 63 north of Jefferson City suffered major damage. Despite the extent of the damage, all four lanes of the highway were closed only 12 days.





The Mississippi River at St. Louis rose high on the riverfront, threatening the downtown area and major landmarks. A record river crest of 49.6 feet was set. The old record of 43.2 feet had stood since 1973.

(see graphic on pages 18-19 for more flood crest information.)

July 26: About 85,000 people in the St. Joseph area lose running water after the Missouri River floods the city's water treatment plant.

July 27: MHTD employees are encouraged to use flex time to help ease traffic congestion and other problems caused by the flooding. The number of roads and bridges closed in the state is at about 250. Route 63 north of Jefferson City closes for the second time.

July 27: I-29, closed from St. Joseph to the Iowa border, reopens. It had been closed since July 23, forcing department crews to set up a series of detours.

July 28: The Missouri River bridge at Jefferson City closes as crews secure a propane tank near the highway and remove water over the roadway. The roadway reopens overnight.

July 29: All state employees working in Jefferson City and living north of the Missouri River are sent home and will not return to work until Aug. 4. The Missouri River bridge at Jefferson City closes late in the afternoon.



The work of department employees seemingly had no end during the summer. Once waters receded, cleanup was the next step. All of the barriers and sandbag walls had to be taken down the same way they were erected — by hand.

July 29: Road crews put up barricades along I-70 near Rocheport as rising Missouri River waters threaten the bridge approach from the west. The bridge is the last remaining Missouri River crossing between Kansas City and St. Louis. Barricades on the upstream side of the road have 3 to 4 inches of water lapping at them. The bridge is also threatened by a breakaway barge, but the barge is secured south of Boonville before it reaches the bridge. The water is rising a foot every two hours. Ross Perot is on hand to encourage sandbaggers.

July 29: A section of railroad bridge crossing the Missouri River at Glasgow collapses. Two steel spans from the bridge damage the nearby Route 240 bridge.

July 31: A breached levee allows flood waters to overrun a suburban airport and hundreds of businesses, and forces the closing of Route 40 west of St. Louis.

July 31: Floodwaters in Missouri and Kansas sever major railroad routes to Kansas City, virtually shutting down the nation's second-largest rail hub. Railroads are detouring hundreds of miles from regular routes to avoid Kansas City, resulting in congested tracks and delays of up to three days.

July 31: To date, the Flood of 1993 has claimed 45 lives, 24 of those in Missouri. More than \$10 billion in damage has been caused across nine Midwestern states, including \$2.7 billion in Missouri. The city of St. Louis and 59 Missouri counties have been declared federal disaster areas.

District 9 rescue rangers

The Flood of 1993 brought many things including danger, destruction and despair. Many lives were lost but thanks to three MHTD employees, the death total was lessened by three.

Maintenance Crew Leader Roy Doyle and Highway Maintenance Supervisor James Helton, both of the Dixon Maintenance Building, helped save the lives of a Dixon couple. In a separate incident, Van Buren Maintenance Worker Roger Christensen rescued a young boy stranded in the middle of a flooded stream. All three received the department's highest safety award, the Meritorious Safety Award, for their quick action and unselfish behavior.

"We're very proud of these men," District Engineer Royce Fugate said. "They made what could have

"They made what could have been tragedy into something very positive."

— District Engineer Royce Fugate

been tragedy into something very positive."

Doyle and Helton were out checking high-water signage along the north end of the Gasconade River bridge on Route D in Phelps County when they saw Lillian Prewett back her car over the roadway embankment and into the river. Prewett and her husband, Clarence, sat in shock as the car floated on the water.

Doyle immediately jumped into the river, swam to the car and pulled Mr. Prewett out through the open passenger's window. Doyle swam with Mr. Prewett back near the bank and handed him off to Helton who pulled Mr. Prewett to safety.

Doyle then went back to the middle of the river and assisted a

Rolla woman who had pulled Mrs. Prewett from the sinking vehicle. Doyle took Mrs. Prewett from the woman and pulled her to safety on the river bank with Helton's assistance. Mr. and Mrs. Prewett suffered no injuries.

On Nov. 14, in a separate incident, Roger Christensen was checking water levels and signage on Route Y at Pike Creek north of Fremont. It was the second day of deer season, and water levels were rising rapidly because of recent heavy rains in the area.

Christensen came upon a van parked at the side of the road. He then noticed a boy, about 10 or 12 years old, standing on top of a barbed wire fence and clinging to a small tree. The water at the

base of the tree was about 3 feet deep and rushing swiftly.

The boy's mother was in the van. She said her son tried to follow an older brother, who had crossed the stream to find their dad hunting on the other side. The tree the boy was clinging to was close to the far side of the stream, but attempts to coax the boy to go across to safety were unsuccessful. He wouldn't let go of the tree.

Christensen checked up and down the stream for crossings. Finding none, he waded into the swift current, which was about 4 feet deep. When he reached the tree, the boy grabbed onto him. Christensen waded back across the stream carrying the boy, returning him to his mother. By the end of the day, rising waters had covered the fence. ♦



Route 40 in St. Louis County was flooded several times. Many homes and businesses along the artery had to be abandoned. Some sections of the roadway were reopened and closed many times due to localized heavy rains.



The National Guard helped out by delivering supplies and water pumps to this flooded area in District 3. Route 168 in Marion County served as a landing pad.



MHTD employees helped their local communities by joining crews like this one. Here, District 10 employees fill sandbags and build sandbag floodwalls in an effort to hold back the floodwaters.

August

Aug. 1: Jon Wade Smith, a District 6 maintenance crew leader, is killed while on duty. The accident occurs at 5:45 a.m. on Interstate 270 just south of Clayton Road as Smith is out putting up warning signs.

Aug. 2: Passenger shuttle service across the Mississippi River at Quincy, Ill., begins operation. Two boats purchased by the department carry 45 passengers each on a one-hour round trip.

Aug. 3: The Missouri River bridge at Jefferson City opens. Traffic is restricted to one lane in each direction because of damage to the northbound

lanes of Route 54. Work will begin as soon as waters recede.

Aug. 3: Rising water and strong currents cause a group of vessels to break loose from their moorings in St.

Louis and smash into the Poplar Street Bridge, causing minor damage.

Aug. 3: Flooding has closed 13 airports in Missouri.

Don't shoot!

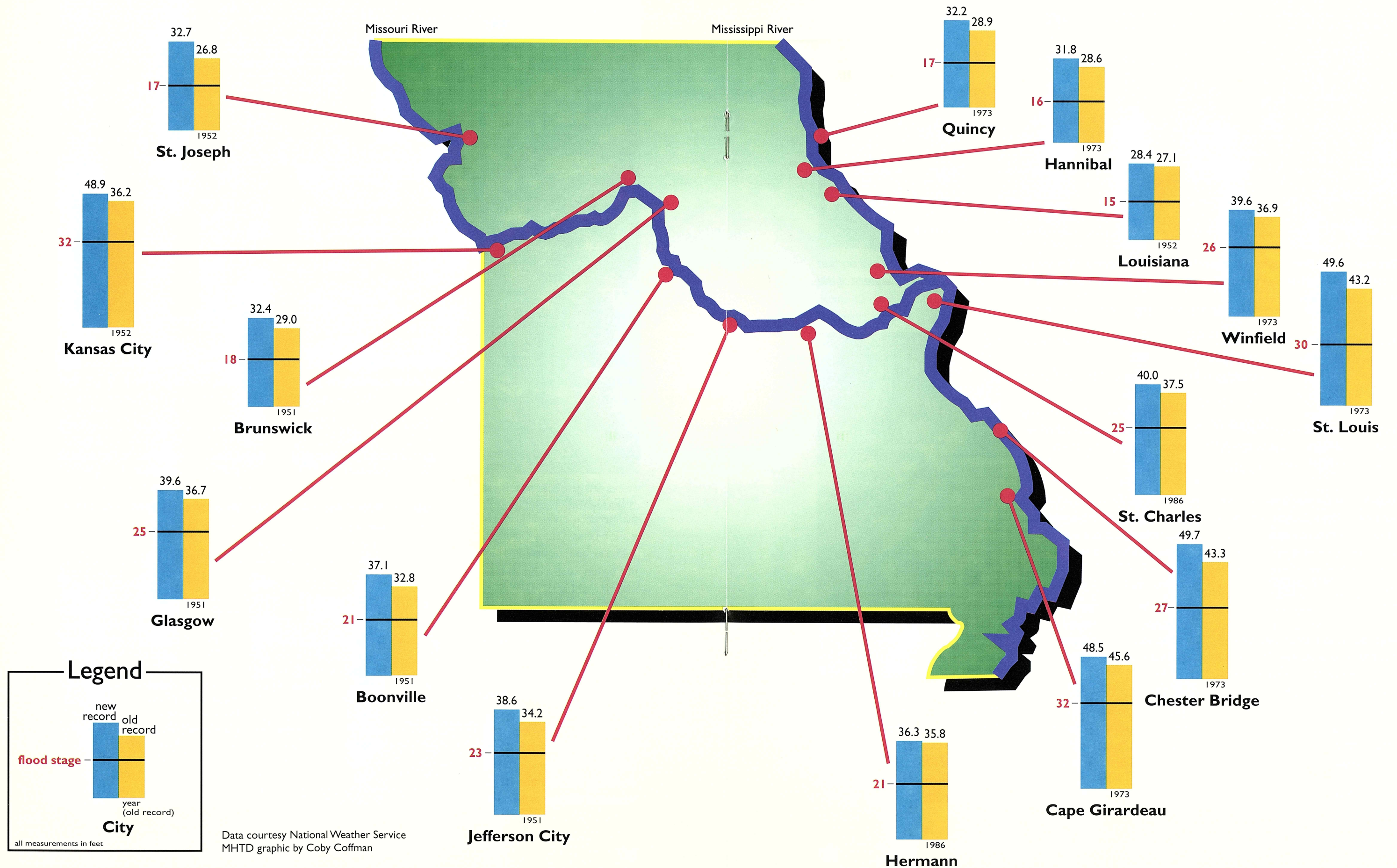
Telling angry drivers the road ahead is closed is tough duty. For proof, look no further than District 1 Maintenance Worker Kevin Teeter.

Teeter was out on the highway explaining a road closure to a driver when the passenger in the vehicle began ranting, raving and swearing about the problem. Teeter approached the pas-

senger's side of the car to talk quietly to the man but quickly backed away when the passenger pulled out a gun and started waving it around and pointing it at him.

Teeter wisely let the man have his way. When the car left, he reported the incident to local authorities who stopped the car a short time later. It turns out it was a pellet gun. The passenger was lucky because no criminal charges were filed. ♦

The Flood of 1993 breaks all the records!





Rapidly rising floodwaters seemed to catch everyone off guard sooner or later. Waters rose so fast in West Quincy that one of MHTD's own dump trucks was left stranded in the advancing waters of the Mississippi River.

Aug. 4: The Union Pacific Railroad reopens its two main tracks through Jefferson City, allowing Amtrak to resume full service by Aug. 6.

Aug. 5: Route 45 reopens north of Weston. The highway was closed for weeks due to high water.

Aug. 5: Floodwaters transform one-half mile of Route 24 near Brunswick into a heap of concrete chunks. "What we're seeing coming up out of the water is much more severe than we expected," says Chief Engineer Wayne Muri.

Aug. 8: Flood water cuts through Route 10 outside Hardin. The rushing water sweeps caskets and burial vaults from the town cemetery, leaving two lying on the road.

Aug. 9: Bus service begins between Perryville and Chester, Ill., via Cape Girardeau in order to help commuters who used the Chester Bridge. About

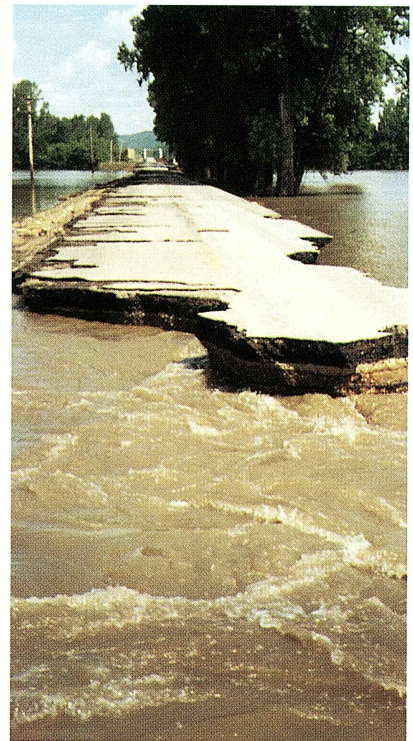
130 roads and bridges remain closed.

Aug. 9: Rosecrans Memorial Airport suffers the heaviest casualties in St. Joseph's war with the Missouri River. A pontoon boat is seen perched on a fence near the airport entrance.

Aug. 11: A 6-mile stretch of Route 40 west of St. Louis is partially reopened. The stretch of highway is the most visible sign of the area's recovery from the Flood of 1993.

Aug. 11: The Route 54 Mississippi River bridge at Louisiana reopens. The bridge, closed since July 1, is handling local traffic as well as detoured vehicles from the north.

Aug. 13: Gov. Carnahan and Chief Engineer Wayne Muri accept a \$28.5 million check from Federal Highway Administrator Rodney Slater at the Capitol. This is the first installment of federal aid for highway repair and cleanup.



This section of Route 19 between McKittrick and Hermann in District 3 joined the list of roads that were damaged and closed during the Flood of 1993. About 960 highway sections were closed in all.

Aug. 13: About 150 roads and bridges in the state remain closed. Rising water once again causes the closing of Route 40 in Chesterfield just east of the Daniel Boone Bridge.

Aug. 14: Route 63 north of Jefferson City opens with one lane in each direction. It had been closed for more than two weeks.

Aug. 15: Westbound Route 40 in St. Louis County reopens. The number of roads and bridges still closed is about 100.

Aug. 16: Route 10 east of Hardin and Route 13 north of Lexington sustain extensive damage due to Missouri River flooding. Residents in Lafayette and Ray counties are worried about the safety of the Lexington bridge. MHTD officials estimate that repairs on the routes will take about 60 days.

Aug. 16: Floodwaters still cover about one-half mile of Route 40 between Rocheport and Boonville. This section of highway has been closed since July 8. Closure of the highway forces many Howard County residents who commute to jobs in Boonville to take a 30-mile detour.

Aug. 16: About 90 roads and bridges remain closed. Route 5 north of Boonville opens. Inspections are completed on all Mississippi and Missouri river bridges from Iowa to Rocheport. Damages appear to be minimal.

Aug. 19: Repair work begins on the Missouri River bridge at Glasgow. Routes 61 and 67 are closed in two locations in Jefferson County.

The battle of Jefferson City

A good example of the battle waged between workers and water took place in District 5, just north of Jefferson City, with efforts first to save, then to restore, routes 54 and 63, the area's two major traffic arteries.

As the Missouri River flood levels rose in late July it became evident that Route 63 wouldn't stay above water long. The highway crosses a flood plain north of town, and although the two northbound lanes were elevated when the highway was upgraded in the late 1970s, the highway was no match for the Flood of 1993.

Route 54 became an even more important link to Jefferson City because it represented the only north-south route available within 50 miles. But the water kept rising. It wasn't long before department workers were toiling 24 hours a day lining the highway with barricades and sandbags.

For a short time, it appeared the hard work would pay off. But on July 29 a propane tank got caught in the flood water, dislodged from its anchoring and ruptured, spreading a cloud of gas in the vicinity of the highway.

The entire area had to be evacuated, so sandbagging efforts were abandoned for several hours. That delay proved costly. By the time workers could return to the area the water could no longer be contained. Late in the afternoon of July 29, Route 54 became another flood casualty.

But to many motorists' surprise and delight, two lanes of Route 54 reopened to traffic Aug. 3, thanks to round-the-clock efforts of District 5 crews. No one figured traffic could be restored so quickly, but department workers had two lanes cleared of bags, barricades and other debris as soon as the water went down. Two lanes of Route 63 reopened Aug. 14.

Major repair work lay ahead. Sections of pavement on both routes 54 and 63 were completely torn apart by rushing waters. In these areas, repairs would be extensive.

District 5 got to work removing chunks of pavement piled up where the road used to be. Early work concentrated on heavily traveled Route

54, where the water went down first. Contractors broke up large pavement pieces into smaller pieces that were used as fill to reconstruct the road base.

Contractor crews working in 12-hour shifts, 24 hours a day, with a \$2,000 per hour bonus for finishing early or penalty for missing the deadline, put down new pavement so Route 54 could reopen Aug. 21 in record time.

A lot of hard work and dedication from mid-Missouri department crews made the difference. The flood made the extra work necessary, but it also gave District 5 the opportunity to show what its employees could do. The results speak for themselves. ♦

A lot of hard work and dedication from department crews made the difference. MHTD employees were given the chance to excel. The results speak for themselves.

Shuttle works overtime for District 3

Levee breaks on the Mississippi River in the Hannibal area inconvenienced both Missouri and Illinois residents. The nearest open bridge was more than 100 miles away.

But extraordinary circumstances call for extraordinary measures, and that's exactly what District 3 provided.

When the approaches to the Route 24 and Quincy Bayview bridges flooded, the department quickly responded by buying two 45-passenger pontoon boats and establishing a passenger shuttle service.

The first passengers crossed the swollen river between Taylor, Mo., and West Quincy on Aug. 2. The boats ran continuously during daylight hours, allowing people to get to their homes and jobs.

Normal crossing time was one hour for a round trip. However, one Illinois family's early September crossing took much, much longer.

As District 3 crews were repairing a damaged section of Route 24 in West Quincy, they

noticed that a family of five, including an infant, had become stranded on the Missouri side after they inadvertently took the last daily shuttle across the river.

Rain, sleet, snow and dark of night don't stop postal workers. They didn't stop District 3 workers either.

It was already dark when Maintenance Area Supervisor Clint Turner drove from Canton to LaGrange, picked up the family and drove them to the water's edge at West Quincy. A contractor working with the department ferried the people over a half-mile of floodwa-

ter to a small boat operated by Maintenance Worker Eddie Hamilton.

Hamilton piloted the family through the flooded West Quincy area to the Route 24 bridge, where other department maintenance workers were waiting. These workers transported the family across the bridge in department trucks to the parking area where their car was located.

It was a trip and some extraordinary people that one Illinois family won't forget, but it was all in a long day's work for District 3. ♦



MHTD used labor and equipment in setting up the ferry in districts 3 and 10. Piers of sandbags and rock chips were built as makeshift docks for the boats. This service became a vital transportation link for many citizens who were cut off by floodwaters and damaged roads.



WATER OVER ROAD



Floodwater from the Crooked River cut through Route 10 outside Hardin in Ray County. The rushing water swept caskets and burial vaults from the town cemetery, leaving two lying on the road.

(Photo courtesy of the Kansas City Star)





This section of railroad bridge near Glasgow collapsed due to currents undercutting the structure's frame in the streambed. Opposite: Rising waters from the swollen Missouri River at Jefferson City nearly made the Capitol an island. State workers living north of the river were sent home for four days.

Aug. 20: Route 41 reopens to Route 24 in Carroll and Saline counties.

Aug. 20: Highway officials across the state continue to play the waiting game on flooded and damaged roadways. They have to wait until the water goes down before damages can be assessed and repairs planned.

Aug. 20: Damage to Route 13 between Lexington and Henrietta is worse than anticipated. A section was ripped away, leaving a hole 8 feet deep and 40 to 60 feet wide. A hole near the Hardin Cemetery on Route 10 is estimated at 47 feet deep.

Aug. 20: The Chester Bridge across the Mississippi River at McBride remains closed to Route 51 traffic.

"Highway 51 is the most critical thing we have going right now," District 10 Engineer Freeman McCullah says. "We still have 10 to 12 feet of water over it at McBride." He said it would be at least mid-September before the roadway could be opened for traffic. The McBride area of Perry County is still underwater as a result of a July 25 levee break.

Aug. 21: The northbound lanes of Route 54 north of Jefferson City reopen. Department crews assist contractors working 12-hour shifts 24 hours a day to repair the damaged highway in record time. It was repaired in just 18 days.

Aug. 23: Repairs start on the Route 159 Rulo Bridge. It's been closed for

Crash course

When Route 36 was closed at Chillicothe, District 1 maintenance crews marked a series of detours. At one point, they ran out of Route 36 shields, so enterprising Signal and Lighting Supervisor John Derr began removing signs from closed sections of the highway to post along detour routes.

This got the attention of a group of youngsters playing football in the area. After the game, they began following Derr along his route as he removed the signs from their posts. After all, how many opportunities do you get to see a demonstration of how to steal highway signs? ♦

A "Little" help

Sometimes it takes a crisis to show us what we're capable of. This was true of District 6 Maintenance Worker Clint Little from the DeSoto Maintenance Building, who risked his own life to save the lives of two women who were trapped in a car in rising water.

A flash flood Sept. 23 caused the Joachim Creek to back up and flood Route P at Victoria, trapping two women in their car. When Little found the women, they were screaming for help, but he had no way of helping them. He told them to remain in their car and wait for more assistance.

When emergency services arrived, Little was able to tie a rope around himself and wade into the chest-deep water to save the two women. Witnesses say they could see the car moving from the force of the water.

Little spent many days and nights fighting the flood, but no day was more important than the one he spent saving two lives. ♦

a month and will be closed for another month before repairs are completed. Floodwaters tore a big gap of about 100 feet out of the highway, which was temporarily bridged with rock.

Aug. 24: Receding water shows that a major portion of Route 19 in southern Montgomery County has been carried away by the Missouri River. The road was under water for a month. Four sections between the river and Route 94 have disappeared, and in places, holes in the roadbed are as large as 250 feet long and 14 feet deep.

Aug. 25: About 60 roads and bridges remain closed. Paving on I-635 in Platte county begins. Work should be completed by Labor Day weekend.

Aug. 31: I-635 reopens, connecting Riverside and Kansas City, Kan. It was repaired in only three weeks after floodwater from the Missouri River washed out the roadbed. Contractors worked 15-hour shifts and a 24-hour work schedule to complete the project.

September

Sept. 3: Transportation Secretary Federico Pena visits Kansas City to present a check for more than \$600,000 to aid in repairing Missouri's flood damaged railroads. Missouri is the first state to receive a share of \$21 million earmarked to help railroads recover from flood damage.

Sept. 8: About 45 roads and bridges remain closed.

Sept. 9: The Route 51 bridge at Chester reopens. The bus shuttle is discontinued.

Sept. 19: The rising Mississippi River once again closes Route 51 to car traffic. Traffic attempting to use the road to cross the Chester Bridge was being hampered by water, which stood 2 feet deep in spots. The road closing means a long commute for local residents through Cape Girardeau and southern Illinois.

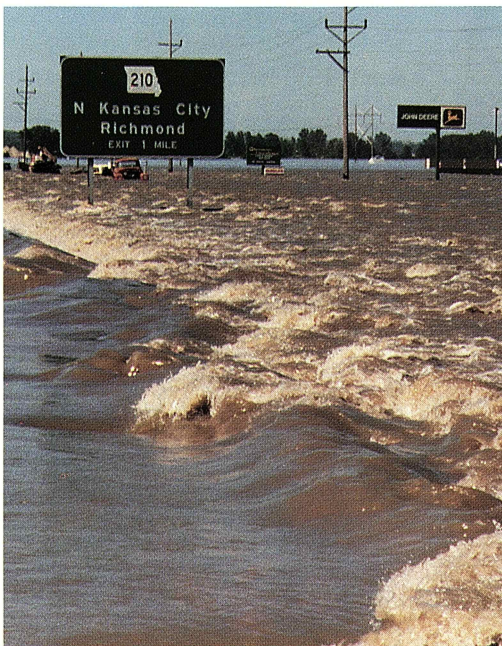
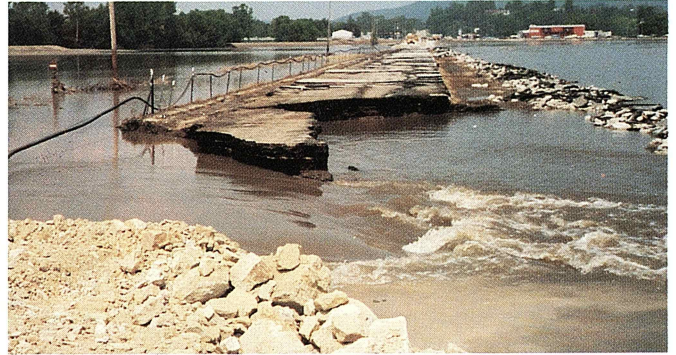
Sept. 22: The Mississippi and Missouri rivers and their tributaries rise due to heavy rain, closing about 160 roads in addition to the 20 that were already flooded.

During the Flood of 1993, MHTD employees and Missouri citizens alike were hoping the rains and the rivers would listen to signs like this one on Perry County's Route C.



WATER OVER ROAD

These are just a few examples of the roads across Missouri that were submerged, twisted and destroyed by the relentless force of the Flood of 1993.



The difference for District 10

In District 10, people were the difference. Like everyone else during the flood, District 10 employees worked long and hard to keep the highways open and repair the damaged highways quickly, but they also took time for what was really important.

On flooded sections of Route 177 in Cape Girardeau County and Route A in Perry County the district ran a different kind of shuttle — a truck.

A 10-wheel dump truck carried landlocked families to and from their homes across flooded sections of the roadways in low-lying areas. This was done around the clock. A schedule of when people needed to be picked up in the morning was also kept.

In another instance, crews sandbagging along Route 61 in

Ste. Genevieve County noticed a woman in trouble. Her home was being threatened by rising waters. Department workers quickly set up sandbag walls protecting and saving her home.

They thought nothing of it until about two weeks later when each crew member received a card and a \$25 check in the mail. The woman, who is on welfare, appreciated their efforts very much. The checks were returned, of course, but the resounding "thank you" was heard loud and clear.

"We instructed our people to help citizens out wherever they could," District Engineer Freeman McCullah said.

Whether helping or being helped, people were the difference in District 10. ♦



District 10's truck ferry

Sept. 24: Rising water causes closings on southbound Route 63 north of Jefferson City, Route 5 in Boone County, the Route 40 bridge in Boone County, and the Route 47 bridge at Washington.

Sept. 25: The Quincy Bayview Bridge reopens. The passenger shuttle service, operating at Quincy since Aug. 2, is discontinued.

Sept. 27: Flooding from heavy rains closes about 50 roads in southwestern Missouri during the weekend. About 180 roads in the state remain closed, including Route 94 in St. Charles County and Route 63 south of Jefferson City.

October

Oct. 1: About 75 roads in the state remain closed. The passenger shuttle, used earlier at West Quincy, is now operating between Chester and Perryville.

Oct. 4: Missouri River bridges on Route 19 at Hermann and Route 47 at Washington reopen. Route 24 west of Brunswick also reopens.

Oct. 5: The Missouri River bridge at Boonville reopens. About 45 roads in the state remain closed.

Oct. 6: The Missouri River bridge at Glasgow reopens. Westbound travelers on Route 240 are detoured onto a county road.



Signs at the intersection of routes 61 and V west of Quincy were the only clues that the roads were still there beneath the water.

Oct. 8: The passenger shuttle operating near Perryville is discontinued as the Chester Bridge at Route 51 re-opens to traffic.

November

Nov. 3: The Route 13 Lexington Bridge over the Missouri River opens. With this opening, all major river crossings in the state are now open for the first time in four months.



The real “Happy Meal”

Keeping flood water off I-29 in Platte County was a big job. Area maintenance crews pulled it off with the help of 80 incarcerated personnel from the nearby Cameron correctional facility.

At the height of the flooding, department workers and prisoners pitched in to fill and place about 9,000 sandbags in one day. There was a problem though — they worked until 6:30 p.m. which meant the prisoners missed dinner at the prison.

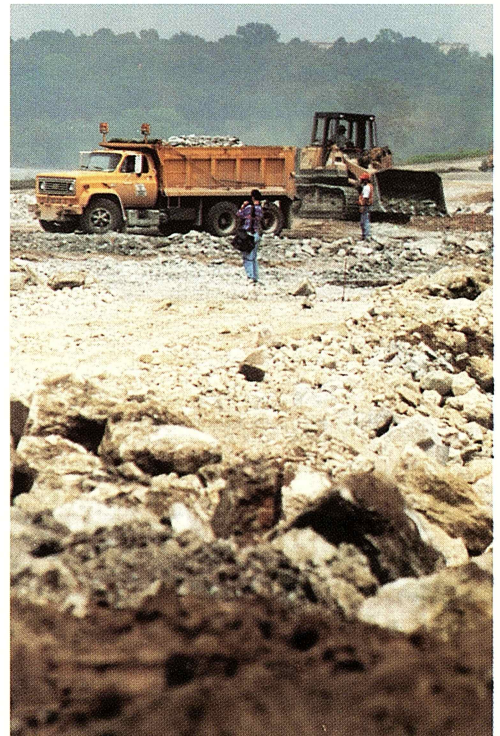
That’s when Maintenance Area Supervisor Larry Whitmore took matters into his own hands. He headed to a nearby McDonald’s where he bought 80 “Happy Meals.” The food filled his trunk and back seat, and he managed to fit 5 gallons of soda behind the driver’s seat.

The prisoners were happy to see Larry and his car full of food. But he couldn’t have done it without Ronald McDonald’s help! ♦

MHTD teams go to work!



Employees and crews like these went to work all across the state, in some cases around the clock, in an effort to protect and then restore the transportation systems in Missouri. Only through those efforts was the department able to pull through this disaster as a team.





From pumping water to sandbagging to flagging traffic to answering telephones, every employee played a big part in the department's efforts during the flood.



Bockwinkel assists FEMA efforts in St. Louis

Maintenance and Traffic Field Liaison Engineer George Bockwinkel's job gave a new twist to the term liaison during the flood. From mid-July to mid-August, he became the liaison between MHTD and other agencies involved with the Federal Emergency Management Agency (FEMA).

Bockwinkel worked 12-hour days keeping road information updated and assisting other emergency agencies with their access in and around the flood. "I advised people of which highways were closed, and what were the best routes to take," Bockwinkel said.

He worked as part of FEMA's Department of Transportation Section at its emergency head-

quarters located at Earth City in St. Louis County. This section included MHTD, the Corps of Engineers, the Coast Guard and the Federal Highway Administration.

He worked as part of FEMA's Department of Transportation Section at its emergency headquarters located at Earth City in St. Louis County.

Bockwinkel was involved in many relief projects, including the Mississippi River shuttle at Quincy, Ill., finding an airport for the National Guard to land water pumps

and helping the Department of Natural Resources take water samples along the Missouri River. He also helped set up a trailer staging area at Wakonda State Park north of Hannibal. The trailers were used to house people who were displaced from their homes by the flood.

At the FEMA emergency headquarters, Bockwinkel had access to the latest weather and river forecasts. He helped predict road openings so MHTD district offices could get prepared to work on the roads.

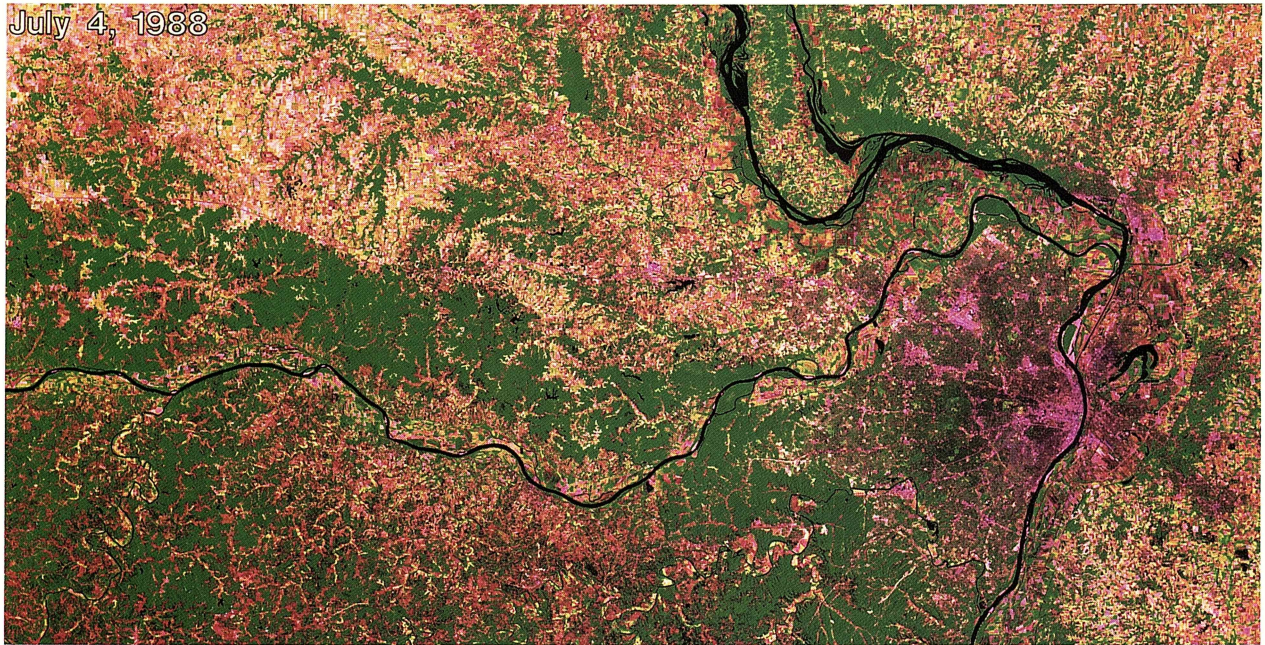
Bockwinkel's services were needed after the water receded, too. He helped determine costs associated with the flood and also got to work rebuilding broken levees around the state. ♦



The entire Route 54 / 63 cloverleaf interchange south of Jefferson City was nearly flooded in late July and early August. Both routes were closed as water covered the flood plain south of town for miles.

Satellite views show the real effects of the flood

(Landsat imagery courtesy of the Earth Observation Satellite Company)

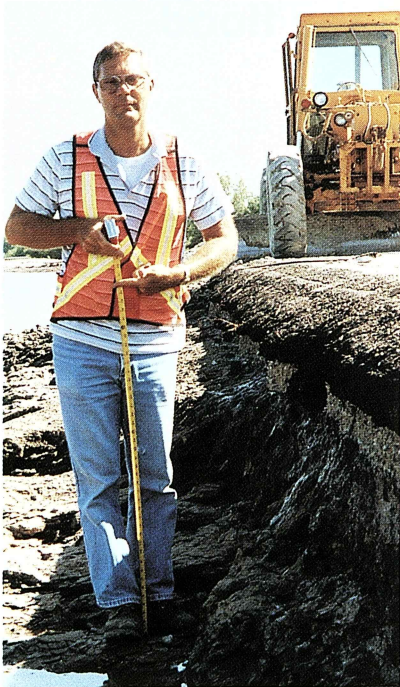


July 4, 1988



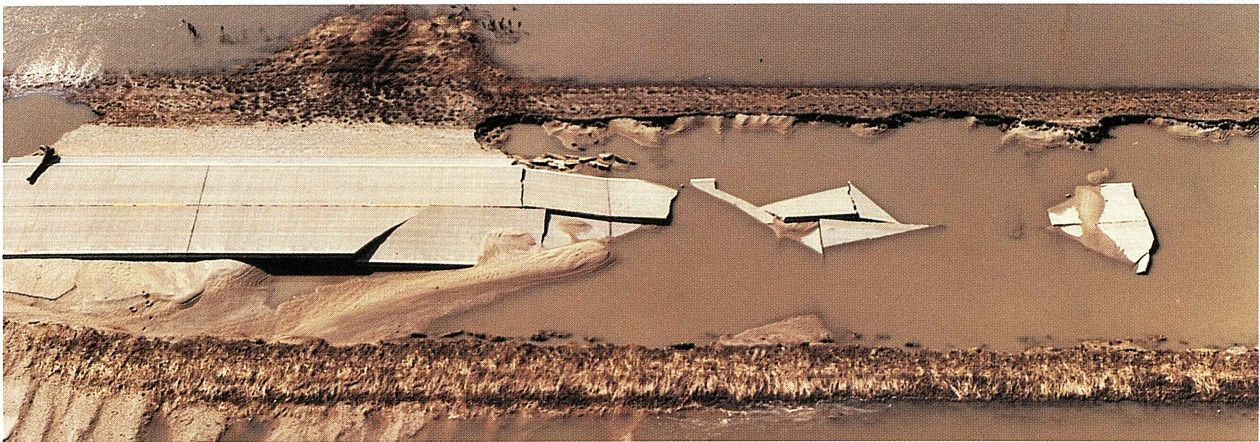
July 18, 1993

The images above are views as recorded by satellite-based computers. Both show the St. Louis area. The difference is dramatic. 1988 was a drought year. 1993 was a flood year. In 1988, the average gauge reading for St. Louis in July was 1.8 feet. The gauge reading in St. Louis on July 18, 1993, was 46.5 feet. On the photos, water is dark blue, vegetation is green, bare soils are tan and clouds are white.



FINAL FLOOD FACTS

- ☛ About 250 routes were closed at the same time.
- ☛ A total of about 960 highway sections were flooded.
- ☛ Flooding closed roads in 112 counties, all of them except two (Camden and Christian).
- ☛ Between June and October, department workers spent more than 350,000 hours fighting the flood and repairing flood-damaged roads. Nearly 120,000 of those hours were overtime.
- ☛ Repairing flood-damaged roads cost about \$70 million. All these roads are now open.



Thank
you!



To all MHTD employees — true flood fighters:

What an unforgettable year 1993 was! All the high water turned our lives upside down for most of the year. Roads destroyed, towns evacuated, crops ruined ... in many ways, it was a year to forget.

But in one important way, I'll remember 1993 as one of our department's best years. That's because I saw so many of you pull together in the face of this adversity and accomplish some amazing things. Whether on the road or in the office, we all did our part during this crisis to help the team succeed.

All across Missouri, department employees spent months fighting this catastrophe. Rising floodwaters covered hundreds of roads, completely destroying many of them. Yet month after month, levee break after levee break, you piled sandbags, detoured traffic, closed roads, answered calls and handled everything else the crisis demanded.

Fighting this year's flood provided the finest example of teamwork I've ever seen. We could never have survived as well as we did without talking to each other, making important decisions every day at each crisis point and relying on each other to accomplish some awfully big goals.

I can't put into words how proud I am of your efforts. It was truly an honor to be a member of your team.

Sincerely,



Wayne Muri
Chief Engineer

